

## COMMENTARY

# Mission of World Federation of Haemophilia, Biotechnology and treatment for all? The paradox

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Today, the hard reality of haemophilia in the world is that 70% of all patients with haemophilia are not diagnosed, and 75% are not treated. These diagnostic and treatment deficiencies obviously derive from a series of shortcomings fundamentally related to a lack of infrastructures, deficient health education, and precarious training and specialization on the part of physicians and specialists. This is generally so because data from the World Federation of Haemophilia (WFH) indicate that haemophilia is not a priority concern for governments, and that moreover, the cost of treatment proves inaccessible in some cases. The unfortunate result is that many patients die in childhood, while others suffer life-long disability and great impairment of quality of life.

In the light of this worldwide situation of the disease, the WFH [1] – through each of the Member Federations – has a series of clear objectives. A general objective is to try to improve and maintain the care of patients with hereditary bleeding disorders throughout the world, while a more specific objective is to promote a global diagnosis of the disease, as it is essential to detect the problem to adopt solutions. In this context, since the World Haemophilia Congress in 2004, there has been a 14% increase in the number of patients diagnosed with haemophilia and other coagulation disorders throughout the world.

Achievement of the objectives implicates the patients and their families, the healthcare professionals – physicians, nurses, orthopaedists, physiotherapists, social workers, dentists, laboratory technicians, etc. – hospital services in general, and particularly the haemophilia and hemotherapy units,

the government authorities, Ministries of Health, and pharmaceutical industry.

As regards treatment, the fundamental aim of the WFH is to offer safe and effective treatment for all patients [2,3]. To achieve this difficult objective, the key strategies are to secure minimum treatment in emerging countries, and to consolidate treatment in those countries where measures have already been adopted [4]. In addition, however, attempts are made to improve access to treatments for von Willebrand's disease and other rare hereditary disorders related to platelet function; share knowledge and promote the capacity to assume treatments through the exchange of information and training; favour access to safety and treatment improvement; and encourage basic and applied research [5].

Relevant consensus efforts will be required to lower the cost of treatment in emerging countries, and to offer products as safe as possible in relation to the induction of inhibitors and as refers to the risk of infection caused by emergent pathogens, as these are essential medicines according to the World Health Organization [6].

In the face of this worldwide situation, and despite the highly relevant projects of the WFH, we cannot neglect the achievements in science and specifically in biotechnology. In effect, at least 320 000 patients receive treatment with biotechnological drugs (fundamentally recombinant hormones, proteins and antibodies), and no adverse effects have been associated with their use after 20 years. Apart from haemophilia, other diseases such as diabetes, hepatitis C and B, rheumatoid arthritis, anaemia, multiple sclerosis, Crohn's disease and different types of advanced or metastatic cancer are treated with recombinant hormones, proteins or monoclonal antibodies.

In the case of haemophilia, and despite the somber picture commented above, a paradigmatic global shift in its treatment has been postulated, thanks

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precisely to the biotechnology – though molecular biology and genetic engineering – and thanks to present plasma-derived products highly safe. For this reason, the change in mentality is of course fundamental not only on palliation of the symptoms of the disease, but also on affording a significant increase in patient quality of life. Today, the new products offer better treatment for the haemophilic patient, and the best preventive options as refers to the detection of carriers and the use of assisted reproduction techniques, all with the aim of preventing transmission of the illness from one generation to the next.

In the light of this situation offered by scientific progress, for the treatment of haemophilia, we inevitably face the *paradox of current treatment for haemophilia*. From the Latin word *paradoxus*, this term refers to a foreign idea or event opposed to common opinion and feeling, and which is of an unexpected or apparently contradictory nature. ‘Paradox’ applied to current haemophilia treatment in the biotechnological era, where the best treatments for the disease are available, refers to the fact that many haemophilic patients are not diagnosed, are very deficiently treated or even receive no treatment, and that patient quality of life in many parts of the world is frequently and clearly deteriorated.

At present, and as refers to the safety of both plasma and recombinant concentrates, we have never had such safe products [7,8], though this progress has been achieved at the cost of many lives and of a poor quality of life among those patients who survived the iatrogenic disasters of the past, associated with the use of plasma derivatives. Still, many haemophilic patients continue to use cryoprecipitates, with the subsequent risk of infection, many of which are caused by emerging pathogens. In effect, the social circumstances of the world population are far different from those of the 1980s, and diseases once only found in certain regions or populations can now emerge anywhere in the world, and lead to serious shortcomings in terms of clinical protection.

It may prove very difficult to offer reasons for the above mentioned paradox, as multiple factors may be involved. Apart from the fact that both the quality of life and life expectancy of haemophilic patients have suffered greatly because of HIV and HCV infection associated with the use of contaminated plasma products, and the problems posed by the middle- and long-term side effects of antiretroviral therapy [9], the fundamental explanation is that the biotechnological techniques are extremely expensive. This constitutes an obstacle for access to such treatments, when governments are either unable or unwilling to assume the expenses involved. This

great inconvenience comes into open conflict with the aforementioned fundamental objective of the WFH of ensuring ‘adequate treatment for all’. Because the sad fact is that of the 400 000 haemophilic patients throughout the world, only 100 000 receive more or less adequate treatment, while the rest simply receive no treatment or are treated only sporadically.

As an example, in Latin America, we can find a broad range of situations, from Costa Rica or Venezuela where all patients have free access to treatment (even if in the form of cryoprecipitates or plasma products), to other areas where cryoprecipitates are available only sporadically. In terms of statistics, 45% use cryoprecipitates; 40% have occasionally received plasma factors; 10% rarely receive treatment; and <3% have access to recombinant factors.

The WFH, as well as all the Member Federations, are not campaigning for recombinant products for all patients, because it will be a continuing need for both recombinant and plasma-derived products for years to come. However, this situation need not affect the decisions and possibilities of certain countries that are able to assume the costs of products of this kind. The idea is to ensure that those regions with little or no resources may still have access to minimally adequate and safe treatment. It is accepted that haemophilia is a chronic illness requiring very periodic treatment, and even more so in the context of prophylactic management, to avoid the serious consequences of the disease, represented by its effects upon the body joints. This situation is not comparable with other diseases where the need for less periodic treatment generates lesser costs than in the case of haemophilia.

In conclusion, in the XXI century – the biotechnological era – we have the best treatment options ever for the management of haemophilic patients. However, *paradoxically*, many patients will be unable to benefit from the spectacular advances offered by recombinant and plasma-derived products highly safe. In any case, such developments are here to stay, and there is now no turning back – in the same way that the typewriter will never come back to replace the computer – as these drugs are key elements in the commercial interests of the pharmaceutical industry. The costs and other priorities of the different governments will be the reasons obstructing access to such extremely safe treatment. The fundamental aim is to ensure ‘socialization’ in the treatment of haemophilia and a distribution of resources, attempting to recover surplus plasma factor production and to secure global access on the part of

the maximum number of haemophilic patients throughout the world, including even the signing of agreements between governments and the pharmaceutical industry [10].

### Disclosures

The author stated that he had no interests which might be perceived as posing a conflict or bias.

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